The *Didiman* and Agricultural Policy; Creating Social Change in Papua New Guinea, 1945-1975

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Prior to World War II, under Australian Administration, the economic development of the Territory of Papua and New Guinea was based on commercial agriculture centered on the institution of the plantation. Little was initiated in commercial or subsistence agriculture development for the Indigenous people. This changed after World War II to a rationale based not only on the promotion and advancement of primary industry but also came to include the indigenous farmers. The traditional farming method used was one based on shifting agriculture, trading networks and marine resources. To develop agriculture within a colony it was thought that a modification, or in some cases the complete changing of existing Indigenous farming systems, was necessary to improve the material welfare of the farming population and for the future national interest of the Papua New Guinea sovereign state.

To achieve the modification in indigenous farming systems the Australian Government adopted and utilized a programme based on Agricultural Extension (AE). The aims of AE were based on the premise that it would raise the level of subsistence agriculture and at the same time, by introducing suitable cash crops, enable the indigenous farmers to gain a monetary income. The agricultural extension officers who carried out this work were known by the Indigenes as the *Didiman* (von Fleckenstein, 1980, p. 74).

This paper will analyse the aims and methods associated with agricultural extension in the Territory of Papua and New Guinea, and argue that the *Didiman* were more than agricultural educators, and were in planning and practice, active agents of social change.

Definition and Colonial Policy Aims of Agriculture Extension

The term Agricultural Extension came into common use in the USA early in the 20th century when the Cooperative Extension Services were formed under the *Smith-Lever Act 1914*, and has become synonymous with agriculture throughout the world (Lord, 1939). Although the term extension, used in relation to schooling, was not concerned with agriculture, it featured four elements common to agriculture extension programs. These are: the knowledge to be extended; the people to be served; a central extension organisation, and the extension agent or contact man (Adams, 1982, p. 1).

By the 1930's, the British developed a model for agricultural extension which was more broadly based than the USA model, gradually adapting to the changing relationship between Indigenous subjects and their colonial masters (Adams, 1982, p.53). Lugard in 1922 (p.504-505) outlined a branch of agriculture advocating an association with research and consisting of propaganda and instruction for Indigenous farmers and Article 22 of the

League of Nations declared that European enterprise with the minimum of State assistance and regulation was the best guarantee of progress for the Indigenous peoples. The British colonial policy aimed to make each colony's administration financially self-sufficient by producing as much food and raw material as possible for export to the colonial metropolis. Colonies, no matter what their initial resources, had to limit their works and services to existing revenues (Murray, 1949). After World War II, the British colonial policy changed to external support for the colonies under the provisions of the Colonial Development and Welfare Act 1945 which allowed for expenditure on long range development schemes. This was an explicit abandonment of previous policy.

Australia, having won UN permission to administer New Guinea (the former German colony) and Papua (an Australian colony) as one entity, after World War II, adopted and developed an agricultural program utilizing both British and USA models of agricultural extension. It was also based on International obligations stemming originally from Article 22 of the League of Nations and later from obligations set out in the United Nations Charter, Article 3, of the Trusteeship Agreement for the Territory of New Guinea. It stated that "the Administering Authority undertakes to administer the Territory in accordance with the provisions of the charter and in such a manner as to achieve in the Territory the basic objectives of the International Trusteeship System which are set forth in Article 76 of the charter". These basic objectives were;

> To promote the political, economic, social and educational advancement of the inhabitants of the trust territories, and their progressive development towards self-government or independence as may be appropriate to the particular circumstances of each Territory and its peoples and the freely expressed wishes of the peoples concerned and as may be provided by the terms of each Trusteeship Agreement (Curtin, 1970, p. 47).

However, Van Den Bam and Hawkins (1988, p. 16) noted agricultural extension alone could seldom bring about agricultural development as it was futile investing in extension services if you could not market the extra produce, or if there were no relevant new knowledge from research and/or farmers experience, or if it was not profitable for Indigenous farmers to adopt to modern practices. The Honorable E. J. Ward, the Australian Minister of External Territories (cited in McAuley and Hogbin, 1948, p.49) stated,

> By the use of experienced tropical agriculturalists, it is the intention of the Government to assist the natives in improving their methods of production. They will be advised regarding the cultivation of crops not grown in Australia for which there would be a ready sale in this country.

The commercial, export agricultural sector was to utilize agricultural extension to achieve these objectives.

Extension in agriculture has been defined by different authorities. Maunder (1972, p. 20), citing a Food and Agriculture Organisation (FAO) publication, defined extension as a "service system which assists farm people through educational procedures in improving farm methods and techniques, increasing production efficiency and income, bettering levels of living and lifting the social and educational standards of rural life". According to Das (1988, p.18), extension was viewed as an economic instrument based on agrarian production but was also seen as having a notion of duty in that it alluded to an effort to achieve an improvement in the material well-being of the rural family and community. However, Fay (1962, p.13-14) claimed there was agreement on the fundamental principles: "it assists people engaged in farming to utilize more fully their own resources

and those available to them, in solving current problems and in meeting changing economic and social conditions".

The purpose of agriculture extension through colonial policy was to contribute to the individual and collective welfare of rural people, to aid Indigenous farmers in adjusting to population changes and economic and social conditions, and to aid in the efficiency of production and distribution of food and crops.

Methods of Agricultural Extension

Early extension initiatives were seen as educational programs passing knowledge from colonial powers to Indigenous subjects. It sought to teach agricultural methods that were already being practiced by more advanced farmers to others not yet familiar with them. After World War II agricultural extension activities became closely associated with research, technology development and policy. Agricultural development specialists began to describe and define more precisely the real meaning of the technology transfer or adoption/diffusion process which the earliest models developed and extended throughout the world and which were in fact communication models. Elster makes a distinction between "substitution", which was a "change in the production process of existing technical knowledge" and "innovation" which was "the production of new technical knowledge" (1983, p. 93). Through "innovation" development implied changes in technology and an increase in useful material resources. This distinction between "substitution" and "innovation" is important as it was through "innovation" that agriculture development was based. Berlo (1960) characterized this approach in a three part model; as a source message-channel-receiver paradigm of communication and this model was the one initially exported to countries where it influenced much of agricultural development decision-making. In 1964, Wilbur Schramm noted

> *It is individuals who must change, but these individuals live in groups, work and play in groups, enjoy many … experiences in groups. Many of the beliefs and values they hold most strongly are group norms – commonly held and naturally defended. Practically, this means that social change is much easier if it is not contrary to group norms. The question is how to confront them* (p.118).

Agricultural Extension programs in the colonies were designed not only to aid Indigenous farmers in achieving their goals as efficiently as possible, but also to change their behaviour in order to reach government goals. Because of the communal nature of the colonialised communities and tribal groupings, extension work became based upon the principles of culture variations and culture change (Lynn, 1949, p. 37). It was acknowledged that Agricultural Extension programs when attempting to advance economic development in non-Western societies, inevitably caused breakdowns within traditional communities (Bonniwell, 1967). The introduction and diffusion of new farming technologies therefore impacted not only on Indigenous farming systems but also on traditional group structures.

In 1946, William Cottrell-Dormer, the first Director of the newly established Department of Agriculture Stock and Fisheries (DASF) in the Territory of Papua and New Guinea proposed a policy and working plan (Australian National Archives, No. A1838). He considered that the broad policy of DASF should be aimed at improving the nutrition and the living standard of the Indigenous people. This was to be achieved by teaching "natives" and encouraging them to take full advantage of the potential marine, plant and animal wealth of their country. Based on the work of Lynn (1949) on agricultural extension,

Cottrell-Dormer proposed a working plan for agriculture consisting of three phases. The first phase was “Investigation”. The aim was to study the potential of crops either for export or industry and food crops, accompanied by a thorough understanding of local farming systems based on Indigenous knowledge.

The second phase of “Application” involved applying this knowledge in the field. In the case of food crops the distribution of “best varieties” also involved teaching how to grow and use these new varieties. This was to be through education. This also meant a change away from the Indigenous farming method of shifting cultivation as it was purported to increase soil erosion. It was also claimed by Gourou that, “to raise the standard of living of tropical peoples the first step is to abolish the… system of shifting cultivation… since it is incompatible with a high standard of living” (1958, p.159).

The third phase was the “Introduction of export crops”. Cottrell-Dormer believed, in line with the thinking of the day, that the Indigenes could gradually be instructed in to the development of export industries which would supply many of Australia’s tropical product requirements such as coffee, tea, copra, quinine, rubber, fibers and spices.

To accomplish these aims it was necessary for DASF to form a new division solely for the purpose of agricultural extension. This newly formed division was to be involved in field testing, application and extension of knowledge in agriculture, horticulture and animal husbandry aiming at developing permanent mixed farming systems for Indigenous small holdings, the improvement of Indigenous nutrition and the fostering of Indigenous export and other associated industries.

Approaches to Rural Development

Adams (1982, p. 52) notes three approaches adopted in agricultural extension programs. These are autonomous extension, package programs and contact farming. These approaches do not stand alone and have been used in a combination approach to agricultural extension in the Territory of Papua and New Guinea. The autonomous approach, involved extension staff being allocated to administrative districts, relaying information on crop varieties and other technical advice to rural farmers mainly through demonstrations and field visits. The duties of an agricultural extension officer were to investigate Indigenous methods of agriculture, to stimulate the improvement of indigenous cultivation, the introduction of new methods, and to give advice to farmers and train subordinate staff. Most attention was given to areas that produced or were able to produce a cash crop for export.

The package approach was based on the premise of supplying a package of technical advice, supply and marketing services. This approach was used extensively by DASF for the establishment of cash crops. This can be exemplified by the Pyrethrum “push” in the Highlands during the 1960’s. Farmers were trained and educated in all technical/agronomic aspects of growing Pyrethrum, and were involved in establishing large acreages and nurseries (Willis, 1963). They were also involved in the harvesting and drying of the flower for a ready market in Australia for the use in fly spray (Bonniwell, 1973, p. 93-95). A package approach had the following characteristics; it linked research, extension and the producer to provide an improved, locally adapted technology in which the producer was linked to supply and credit for seed, fertilizer, and marketing. This approach was also used for the development of other cash crops such as tea and coffee. The ulterior motive was the development of high yielding export crops that allowed the Indigenous farmer to enter a cash economy.

The contact-farming approach was adopted by colonial governments, including Australia to increase the quantity of export crops which were being produced by land smallholders. It allowed the farmer to work on his own land, in his own time and for his own benefit. DASF extended advice, credit and marketing services to the farmer in return for a certain minimum quality or grade. In the Territory, DASF established Rural Progress Societies (RPS) for this purpose. This was an organisation for local Indigenous producers. It was hoped these would demonstrate the effectiveness of Indigenous-sponsored movements as a basis for improved technology and as a motivation towards development through either communal or individual enterprise. This form approach was developed into projects such as the growing of rice in the Mekeo, Amele Plateau and Ramu-Warapu areas in the Territory of Papua and New Guinea (Cottrell-Dormer, 1951).

Role of the *Didiman*

Agricultural Extension can simply be seen as an informal rural education (Lynn 1949, p.14), following basic teaching principles. These basic teaching were promoted in works produced by Lynn (1949), Fay (1962), Department of Agriculture Stock and Fisheries *Extension Manual* (1967) and Adams (1982). They were universal in their application to agricultural extension. The British and USA models used four different teaching methods;

(i) Oral Methods. These include personal contacts, general meetings, farm tours, discussions and radio. Contact between farmers and extension workers were important at all levels. Personal contact developed confidence in extension programs and ideas for improvement and was invaluable and essential in the early stages of bringing agricultural change to new areas. It was hoped it would result in a high percentage of exposure because the information given was adapted to local conditions.

(ii) Visual Methods. The first of these was demonstration. This involved the teaching of skills such as ploughing, pruning, culling, and making of contour banks. The second method of demonstration was known as the result demonstration which involved showing the effects of a stated practice such as contoured fields, well manured fields, weed-free gardens, and successful cropping, animal husbandry and use of equipment. According to Lynn, (1949, p.16) this was the most fundamental and valuable of all extension methods and was “the classical extension method expressly mentioned in all acts establishing extension services”. Other forms of demonstration included the mobile demonstration, the demonstration of farming methods, and group demonstrations. Visual aids such as films, film strips, slides, photographs, pictorial posts, charts and graphs also played an important part in extension work, especially when dealing with illiterate populations. They were widely used for instructional purposes.

(iii) Printed Word. Putting information into print promoted clarity and accuracy and relied on the printed word in circular letters, bulletins, leaflets, periodicals and text books.

(iv) Informal methods. These relied on competitions, shows and fairs, extension campaigns, rural credit schemes, rural school projects and rural youth clubs.

In conjunction with legislation, and direct methods of persuasion and coercion the result was the diffusion of innovation in agricultural development. Rogers (1989, p. 137) notes these methods alone and in combination were widely employed throughout the world.

Most of these methods were utilized in the field by the *Didiman* or agent to bring about agricultural change. In a Report on agricultural extension work to the Australian Administrator and Members of the Research Council in 1954, R. E. P Dwyer, the Director of DASF, claimed these were successful methods.

Initial contact with Indigenous farmers was made through patrols. This relates to the Investigation Phase allowing for familiarization of the area and the people. Cottrell-Dormer (1951, p.123) noted the lack of anthropological work or research among many rural people within the Territory, so patrolling by *Didiman* became and remained a most important aspect of agricultural extension work. *Didiman* while on patrol collected anthropological and ethnographical data to be used in assessing the agriculture potential for a particular area and also to gauge the attitude of the Indigenous people towards agricultural development (TPNG Administration Press Release, No.66, 1956). In the 1960's, patrols were still being used for surveying in regards to topography, geology, soils, climate and ecology (Willis, 1963-64).

Patrolling also allowed for the distribution of improved seed and planting material among Indigenous farmers. Later, patrolling in established contact areas was used for the purpose of holding agricultural meetings within villages to promote cash crops, to teach people to mark out gardens for cash crops, establish nurseries, to correct plant culture techniques, to bring awareness of the presence of diseases and pests such as the corn blister, to supply information about agricultural policies, and to hear any concerns of the Indigenous regarding agricultural problems (Willis, 1964). Another object of patrols was to collect data on land population pressures, particular in the Highlands and for the gathering of the annual census (Montgomery, 1960). Patrolling also allowed for the examination of subsistence farming among the Indigenous. The aims here were twofold: both to improve the quality and yields of existing food crops and to encourage new crops which would improve the traditional diet. Rice, peanuts and maize, and improved varieties of the traditional staple of sweet potatoes were introduced (Dwyer, 1954).

The establishment of Agricultural Stations in the Districts and sub-districts throughout the Territory of Papua and New Guinea were used for the demonstration of crop growing techniques. Another practice was to start with a suitable central community and establish the best methods of production for a certain crop or crops so that the surrounding communities and representatives of district communities could observe the methods working in practice in a village. Extension Centres were established for this purpose. Surrounding communities were then invited to participate in cash crop growing and production. This form of demonstration was a movement away from a formal structure of cash crop introduction to one that encouraged communities in an area to begin cash cropping in their own lands. It was in this way that cash crops such as rice, cocoa, cinchona and coffee were introduced to people living in isolated areas.

The *Didiman* were also teachers. Indigenes, who had been formally educated through Missions or Government schooling were employed within the Division of Agricultural Extension as Farmer Trainees. Much of this training was carried out at Agriculture Extension Stations and Extension Centres. Visual aids were also used for instruction and included publications and films. These were produced in English, Pidgin and Police Motu. Films portrayed different aspects of tropical agriculture. These visual aids were held at Agriculture Stations for the Farmer Trainee program (DASF Annual Reports, 1961- 76).

Conclusion: Agents of Change

The potential and perhaps deliberate role of the *Didiman* was that of an agent of change. He was expected to be the catalyst that motivated Papua New Guineans to change their farming system, their relationship with the land and the socio-economic structure of the village and clan. The *Didiman's* aim was to introduce the Euro-American concept of productivity and change the role of the Indigenous farmer in the direction of cash-based economics and export cropping. These changes can be measured by the increase of export crops, acreages cleared, villages relocated, roads built, leases signed, changed diet and the increase of agriculture literacy among the rural Indigenous population. These achievements were reported in the Annual Reports to Konedobu, to the Administrator, Canberra and the United Nations. The *Didiman's* success was measured in Konedobu and Canberra, by the amount of export cash crops being produced for market. This gave *Didiman* a great sense of personal triumph, of contributing to a nation's destiny and at a personal level of feeling they were doing a good job, and a job that was important.

For the Papua New Guineans the Agricultural Extension Program in the Territory of Papua and New Guinea meant regular contact with government officials and the introduction of Western farming techniques, not only in the area of subsistence farming but also in export crops. For many Papua New Guineans, it meant being told what to do from "outsiders" and of all things, what to do with what they held most dearly, their clan gardens. Papua New Guineans were told how to mulch, what to grow and how to improve their subsistence crops. The introduction of export crops, such as, coffee, rice, rubber, cocoa and pyrethrum extended and introduced new farming methods. The introduction of cattle also altered their ecosystems, from one of a slash and burn, to the introduction of Western pastures and fields, this lead to large scale reshaping of the topography.

All these innovations in the field brought about an introduction to a cash economy which appealed to the entrepreneurial spirit of the Papua New Guinean (Finney, 1968, 1969, 1973). Increases in subsistence produce led to the development of not only local markets, but also allowed many subsistence farmers to become smallholder farmers and transport owners and become involved directly in marketing and local production of produce. In many ways the increase of food production and the introduction of export cash crops changed not only farming techniques and improved the general diet and health, but also accommodated a new form of "*bigmen*", the cash cropper/business men, and this in turn, created power shifts among clan and tribal groups.

The rationalization of subsistence agriculture through land settlement and Land Tenure Conversion schemes introduced by DASF, also meant that Papua New Guineans left traditional lands and moved, often long distances. This created a new level of internal/circular migration, although mobility and working for wages as labourers had long been an aspect of the colonial presence. It also meant a competition in terms of land use, time and labour due a shift from family or community based farming to one based on individual gardens. Papua New Guinea villager's wealth was now determined by prices in the local town markets, and distant world markets.

Didimen also contributed to negative social changes such as the breakdown of communities, ecosystems and tribal structures, but, on the other hand, the increase in infrastructure (roads, trucks, shipping, airplanes, telephones, banks and cooperatives) allowed Papua New Guineans easier access to the "outside" world, leading to changes in Indigenous socio-ecological beliefs and traditions. Papua New Guineans adapted to a world that included the use of farm machinery and transport vehicles. Motor powered canoes allowed access to schools, health centers and other goods and services not otherwise accessible. Through patrolling, agricultural education, small holder farming, land settlement schemes, Land Tenure Conversion Schemes and the introduction of Rural

Progress Societies, the *Didiman's* presence for thirty years suggest that they were historically a very significant agent of social change.

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